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CLINICAL VIGNETTE

Drainage of Large Hepatic Cyst (1000 ml) Leading to Intravascular Fluid Depletion and Worsening Hyponatremia in a Patient with the Syndrome of Inappropriate Antidiuretic Hormone (SIADH) Secretion

Shih-Fan Sun, MD and Michelle Sangalang, MD

Introduction

Large hepatic cysts have usually been associated with fungal or parasitic infections¹ or occasional malignancy.² Echinococcal infections caused by the larval stage of the tapeworm "*Echinococcus granulosus*" raise the most concern due to the tendency for these organisms to generate anaphylactic responses with cyst drainage. These are also referred to as "hydatid cysts".³ However, there are several other causes for liver cysts. While this uncommon parasitic infection is the most often suspected, it is not the only consideration on differential diagnosis.⁴

Case Report

An 85-year-old female with hypertension, hyperlipidemia presented to clinic with abdominal pain and nausea. Her blood pressure was 130/78, and pulse 97. Her exam was notable for mobile 10 x 15 cm mass in the periumbilical area. Labs were notable for hyponatremia of 130 mmol/L and chloride of 86 mmol/L. Other laboratory tests including comprehensive metabolic panel, amylase and lipase, complete blood count, and erythrocyte sedimentation rate were unremarkable. US abdomen showed a large complex cystic intra-abdominal mass with unclear etiology. CT abdomen/pelvis with contrast showed 15.5 x 13.5 x 16.0 cm cystic mass. There is suggestion of a thin rim of hepatic tissue around the anterior aspect of the mass suggesting likely hepatic origin. Thin internal septation was seen inferiorly but no evidence for a solid component. She underwent ultrasound guided abdominal/liver cyst aspiration and 1000 cc of clear yellow fluid was removed. Cytology eventually showed cystic contents including histiocytes without evidence for malignancy. Echinococcal antibody was negative. Given persistent nausea despite ondansetron and constipation, she was sent to the emergency room. Her sodium in the emergency room was 129 mmol/L, which corrected with intravenous fluids. Her symptoms resolved with a bowel regimen. At follow up with her primary care physician, her sodium was 121 mmol/L and patient was referred to nephrology. Urine osmolality of 249 mOsm/kg, serum osmolality of 272 mOsm/kg, and urine sodium of 36 mmol/L, supported hypovolemic hyponatremia. She was subsequently found to have inappropriate antidiuretic hormone secretion at baseline and was instructed to restrict fluids to less than 1.5 L per day and to increase protein and salt in her diet. Her sodium

eventually normalized. Malignancy and infectious diseases evaluations have remained negative.

Discussion

This case has several noteworthy features. First is the unusual finding of a large hepatic cyst without clear etiology. There was no evidence of fungal or parasitic infections nor underlying malignancy. The second teaching point is worsening intravascular volume depletion after relatively small volume cyst drainage from an extra vascular source. This case illustrates the differential diagnosis needed to evaluate a liver cyst,⁴ as well as the importance of urine indices to understand the acute and chronic causes of hyponatremia.⁵ Though no malignancy has been detected, the finding of SIADH at follow-up with persistent hyponatremia after volume repletion suggests the need for age appropriate cancer screening and other conditions associated with localizing clinical signs and symptoms. The patient developed recurrent abdominal pain and nausea nine months after initial discharge and was readmitted and underwent repeat cyst aspiration. Cytology was negative again as well as identification of infectious etiology. She continues to be followed with serial labs and imaging.



Figure 1: Graph of trends of serum sodium [Na+] (meq/L) versus date, red arrow date of paracentesis and removal of 1000 ml.



Figure 2: Computed tomography image of large 1000 cc hepatic cyst.

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